AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently amended) A method of growing a nitride-based film, the method comprising:

applying a first precursor flux for a first element using a first series of pulses, wherein a pulse in the first series of pulses lasts for an approximate first duration and wherein the first element comprises nitrogen; and

applying a second precursor flux for a second element using a second pulse, wherein the second pulse has a second duration~~, and wherein the second duration~~ that is not equal to the first duration, and wherein at least a portion of a pulse in the first series of pulses is applied at the same time that at least a portion of the second pulse is applied.

2. (Original) The method of claim 1, further comprising applying a third precursor flux for a third element using a third pulse, wherein the third pulse has a third duration, and wherein the third duration is not equal to the first duration.

3. (Original) The method of claim 2, further comprising applying a fourth precursor flux for a fourth element using a fourth pulse, wherein the fourth pulse has the first duration.

4. (Original) The method of claim 3, wherein the nitrogen precursor flux comprises NH3, the second precursor flux comprises TMG, the third precursor flux comprises TMI, and the fourth precursor flux comprises TMA.

5. (Canceled)

6. (Previously presented) The method of claim 1, wherein at least one of a pulse in the first series of pulses and the second pulse has a non-rectangular waveform.

7. (Original) The method of claim 1, further comprising illuminating the nitride-based film with ultraviolet radiation.

8. (Original) The method of claim 1, wherein the nitride-based film is grown on a substrate comprising at least one of: lithium aluminate and silicon.

9. (Previously presented) The method of claim 1, wherein a pulse in the first series of pulses is separated from an adjacent pulse by a gap having the first duration.

10. (Withdrawn) A method of growing a nitride-based film, the method comprising:

applying a first precursor flux for a first element using a first series of pulses, wherein the first element comprises nitrogen; and

applying a second precursor flux for a second element using a second series of pulses, wherein at least a portion of a pulse in the second series of pulses is applied during at least a portion of a pulse in the first series of pulses.

11. (Withdrawn) The method of claim 10, further comprising applying a third precursor flux for a third element using a third series of pulses, wherein at least a portion of a pulse in the third series of pulses is applied during at least a portion of a pulse in the first series of pulses.

12. (Withdrawn) The method of claim 11, further comprising applying a fourth precursor flux for a fourth element using a fourth series of pulses, wherein at least a portion of a pulse in the fourth series of pulses is applied during at least a portion of a pulse in the first series of pulses.

13. (Withdrawn) The method of claim 10, further comprising illuminating the nitride-based film with ultraviolet radiation.

14. (Withdrawn) The method of claim 10, wherein a duration of a pulse in the second series of pulses is not equal to a duration of any pulse in the first series of pulses.

15. (Withdrawn) The method of claim 10, wherein a pulse in the second series of pulses has a non-rectangular waveform.

16. (Withdrawn) A method of growing a nitride-based film, the method comprising:

applying a nitrogen precursor flux comprising NH3 using a first series of pulses; and

applying a second precursor flux for a second element using a second series of pulses, wherein a pulse in the second series of pulses has a non-rectangular waveform.

17. (Withdrawn) The method of claim 16, wherein at least a portion of a pulse in the second series of pulses is applied during at least a portion of a pulse in the first series of pulses.

18. (Withdrawn) The method of claim 16, wherein each pulse in the first series of pulses has a non-rectangular waveform.

19. (Withdrawn) The method of claim 16, wherein a duration of a pulse in the second series of pulses is not equal to a duration of any pulse in the first series of pulses.

20. (Withdrawn) The method of claim 16, further comprising illuminating the nitride-based film with ultraviolet radiation.

21. (New) The method of claim 1, wherein the applying the first and second precursor fluxes provide sequential flows that include:

a first flow including the first precursor flux but not the second precursor flux;

a second flow including both the first and second precursor fluxes; and

a third flow including the second precursor flux but not the first precursor flux.